CHAPTER 3

METHODOLOGY

3.1 INTRODUCTION

This chapter will explain about the research that conducted and explain the study carried out. In this chapter, explanation about the materials used, the research planning and the testing conducted find suitability of the industrial ceramic wastes as possible substitution for regular crushed aggregates. This part also will give the clear point of view about the research and clearly shows how the objective of this research achieved. At the early stage, the data and the literature review were been collected from the previous study. The source of the study such as books, journals, research papers, articles, and internet. The discussion between was crucial in order to improve and gain the knowledge and information regarding the scope of the research. The sample preparation is following British Standard 1881, 1995. Below is a chart flow of the research methodology.

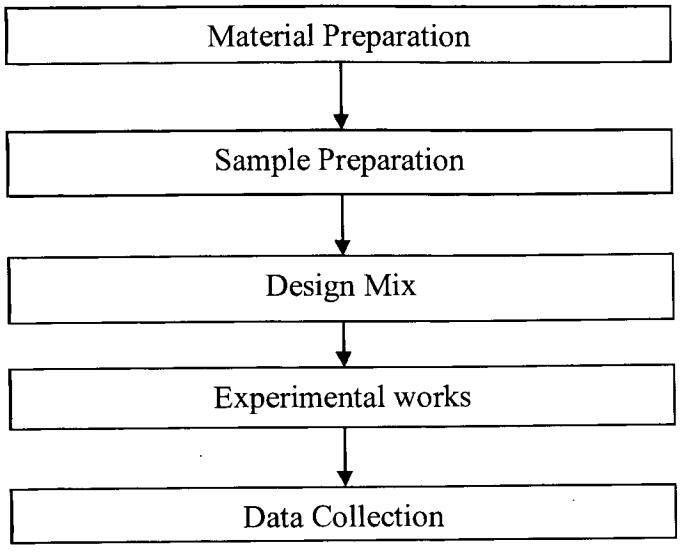

Figure 3.1: Research methodology flow

3.2 MATERIALS PREPARATION

Good preparation of material was vital in order to ensure the concrete ingredients are suitable to be utilized inside the lightweight aggregate concrete and produce better concrete performance. .

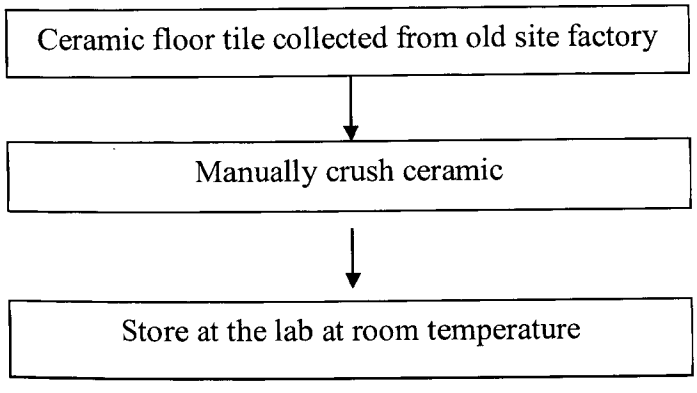

Figure 3.2: Ceramic tile preparation flow

3.3 MIXING INGREDIENTS

During the production of ceramic aggregate concrete, there are six main ingredients used that are Ordinary Portland Cement (OPC), coarse aggregates, ceramic coarse aggregates, sand and water.

3.3.1 Cement

For this study, the Ordinary Portland cement has been chosen due to it is commonly been used spread in our construction industry. The OPC used complied with Type I Portland Cement in accordance with ASTM C150 (2005) as shown in figure 3.1. The OPC was sieved through 300μm sieve. The sieved OPC was kept in an airtight container to prevent air moisture contact as hydrated cement particle would affect the formation of calcium silicate hydrate gel. All the cement used were stored away from damp floors and stacked close together in a well-aired, clean and dry place.

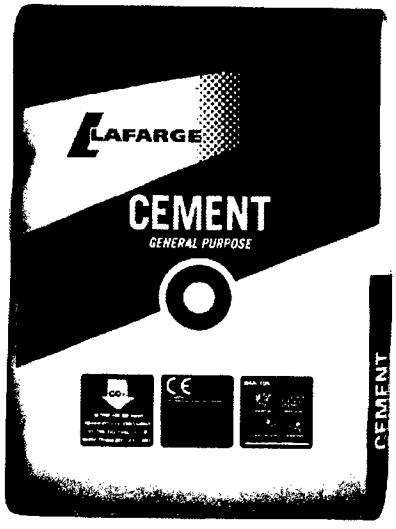

Figure 3.3: Ordinary Portland Cement